



The effects of monensin sodium and xylanase on broiler growth performance.

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Introduction

Animal Agriculture has a limited effect on antimicrobial resistance in human health; however, there is pressure within the industry to reduce and eliminate the use of antimicrobials and antibiotics. Monensin sodium (Coban), an ionophore, has been used for years in poultry diets to increase digestibility. To appease the growing consumer demand to reduce antibiotic usage, a potential alternative to antimicrobial feed supplement is an enzyme. Exogenous xylanase has been known to improve digestibility in higher fiber diets, but its ability to replace an antimicrobial such as monensin sodium is unknown.

Objective

The objective was to find whether or not xylanase could replace monensin sodium in order to improve feed digestibility in differing fiber levels of a poultry diet.

Experimental Procedures

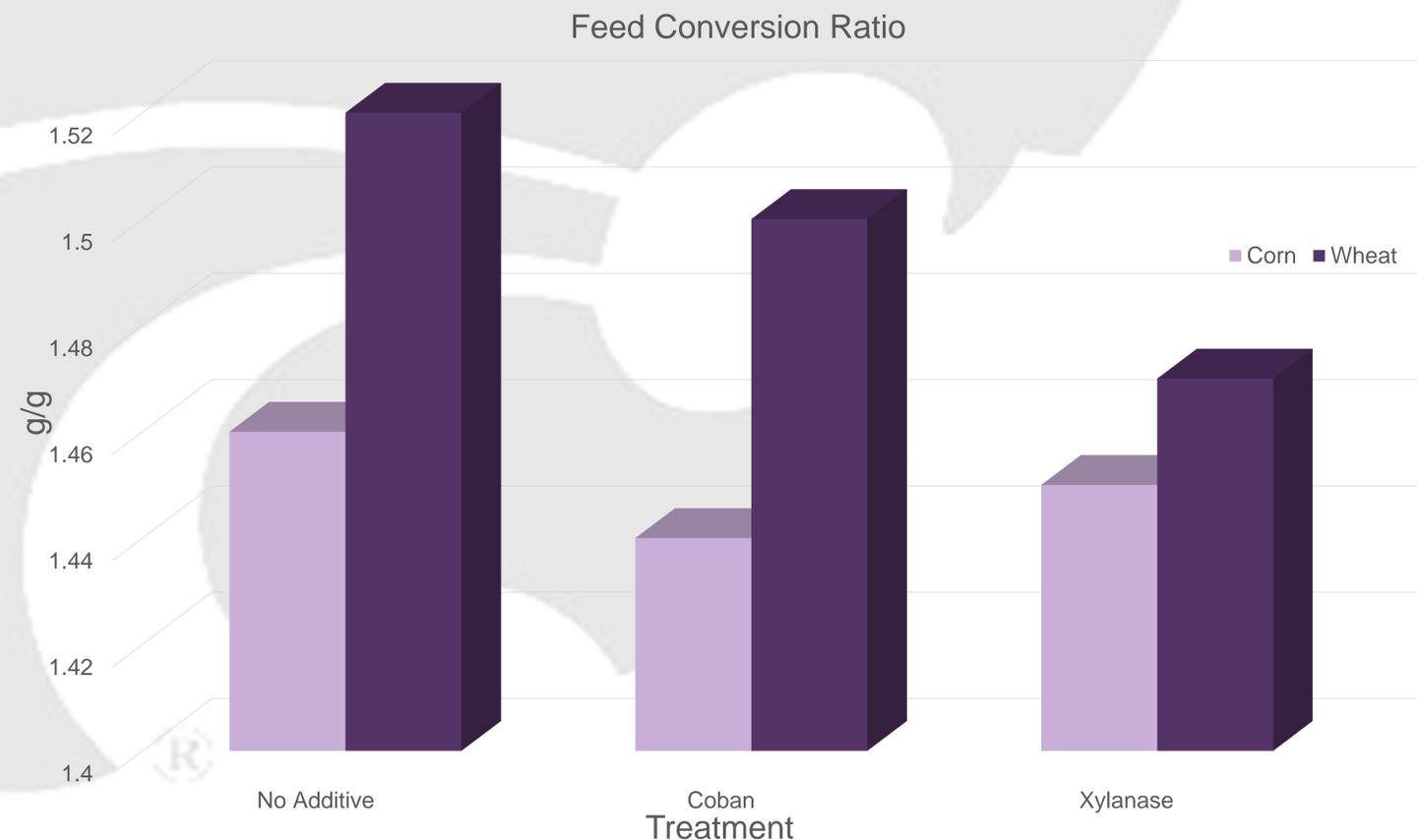
- 216 day old chicks (Cobb × Cobb, initial weight = 46.7 ± 0.10 g) were allotted to battery cages (6 birds/cage, 6 cages/ treatment) for an 21 day growth experiment.
- Chicks were fed 1 of 6 dietary treatments arranged randomly (corn vs. wheat vs. corn and monensin sodium vs. wheat and monensin sodium vs. corn and xylanase vs. wheat and xylanase).
- Treatments of corn or wheat based diets were supplemented with 0.10g/kg monensin sodium (Coban 90; Elanco Animal Health, Greenfield, IN) or 16,000 betaxylanase units/kg beta 1-4, endo-xylanase enzyme (Econase XT; AB Vista, Marlborough, UK)
- Birds were weighed and feed disappearance measured on d 0 and 21 to determine average daily gain (ADG), average daily feed intake (ADFI) and feed conversion ratio (FCR).
- Daily mortality was accounted for, and was log transformed to normalize distribution for analysis.
- There were significant interactions, so all were removed from the model statement.

Experimental Results

Effect of grain type, monensin sodium, or xylanase inclusion level on broiler growth performance.

Grain Type	Monensin Sodium	Xylanase	n	1-d BW, g	21-d BW, g	Feed intake, g	FRC, g/g
Corn	No	No	6	43.8	848.5 ^a	54.0 ^a	1.46 ^{ab}
Wheat	No	No	6	44.0	879.0 ^{ab}	57.5 ^{bc}	1.52 ^c
Corn	Yes	No	6	43.9	940.4 ^c	58.6 ^{bc}	1.44 ^a
Wheat	Yes	No	6	44.2	932.1 ^c	57.4 ^{bc}	1.50 ^{bc}
Corn	No	Yes	6	44.0	868.6 ^a	56. ^{ab}	1.45 ^a
Wheat	No	yes	6	44.2	926.0 ^{bc}	59.6 ^c	1.47 ^b
SEM				0.64	14.91	1.15	0.014
P-value				0.90	< 0.0001	< 0.0001	0.006

^{abc}Values in columns not sharing the same superscript letter are significantly different (P < 0.05).



Conclusions

Results indicate that xylanase does improve nutrient digestibility in wheat-based diets to that of a corn-based one. However, there was a limited impact reported for feeding an antimicrobial in this environment.